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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,792	07/24/2003	David R. Cheriton	CIS0192US	1225
33031 7590 07/25/2008 CAMPBELL STEPHENSON LLP 11401 CENTURY OAKS TERRACE BLDG. H, SUITE 250 AUSTIN, TX 78758				
EXAMINER				
LEE, BETTY E				
ART UNIT		PAPER NUMBER		
2619				
MAIL DATE		DELIVERY MODE		
07/25/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/626,792

Applicant(s)

CHERITON, DAVID R.

Examiner

BETTY LEE

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 17-81, 83 and 85-92 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17-81, 83 and 85-92 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 28, 2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims **1-14, 17-81, 83, and 85-92** are rejected under 35 U.S.C. 103(a) as being unpatentable over Khansari et al. (US 6,446,131) in view of Reiss (US 2004/0267945).

Regarding claim 1, Khansari teaches a duplicate packet map (see col. 7 lines 38-45); a DPM bank, wherein the DPM bank comprises the DPM (see col. 7 lines 39-41) and wherein the DPM comprises a previous time interval field and a current time interval field (see col. 7 line 64 – col. 8 line 5). Khansari teaches all the subject matter of the claimed invention with the exception of a plurality of DPMs. However, Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 2, Khansari further teaches a plurality of DPM fields (see col. 7 lines 46-56; There are multiple bytes in the index.).

Regarding claim 3, Khansari further teaches the DPM is configured to receive a packet summary value (see col. 7 lines 38-45; FCS field of the frame corresponds to a PSV.).

Regarding claim 5, Khansari further teaches a one of said DPM fields corresponds to the PSV (see col. 7 lines 38-45).

Regarding claim 6, Khansari further teaches each of the DPM fields corresponds to a bit in the PSV (see col. 7 lines 57-63).

Regarding claim 7, Khansari further teaches each of the DPM fields is configured to compare a value of a corresponding bit of the PSV with a value stored in each of the DPM fields to generate an output, and a value of each of the outputs indicates whether the value of the corresponding bit of the PSV matches the value

stored in the each of the DPM fields (see col. 7 lines 50-56; The index generated from the FCS is compared to the index in the table. The matching index then indicates if the packet was previously received.).

Regarding claim 8, Khansari further teaches each of the DPM fields is configured to be addressed using the PSV, and a value stored in a one of the DPM fields corresponding to a value of the PSV indicates whether the packet is the duplicate packet (see col. 7 lines 46-56).

Regarding claim 9, Khansari further teaches a packet summary value generator, where the duplicate packet map is coupled to the PSV generator (see col. 7 lines 46-56).

Regarding claim 10, Khansari further teaches the PSV generator is configured to generate a PSV based on a packet received by the PSV generator (see col. 7 lines 46-56), and the DPM is configured to receive the PSV (see col. 7 lines 46-50).

Regarding claim 11, Khansari further teaches a plurality of DPM fields (see col. 7 lines 46-51; The index of the hash table has multiple bits.).

Regarding claim 12, Khansari further teaches one the DPM fields corresponds to the PSV (see col. 7 lines 51-56; The index is matched to determine whether or not the packet has been previously received.).

Regarding claim 13, Khansari further teaches each of the DPM fields corresponds to a bit in the PSV (see col. 7 lines 46-51).

Regarding claims 14 and 17, Khansari teaches all the subject matter of the claimed invention with the exception of a Bloom filter. However, it is well known in the

art to use a Bloom filter with a hash table. Thus, it would have been obvious to one of ordinary skill in the art to use a Bloom filter with the hash table as taught by Khansari. The motivation for doing so is to make the table more space efficient.

Regarding claim 18, 47, 61, 74, and 87, Khansari teaches all the subject matter of the claimed invention with the exception of a plurality of DPMs. Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). It is well known in the art that the received packet can be compared with a current map. Thus, it would have been obvious to one of ordinary skill in the art to use a current map. The motivation for doing so is to make the system more efficient by focusing on the current map.

Regarding claim 19, Khansari teaches a DPM addressing unit coupled to said DPM (see col. 7 lines 50-56; The addressing unit provides the PSV to the table.) and a DPM control unit, coupled to control the DPM addressing unit and the DPM (see col. 7 lines 39-45; The control unit controls the duplicate packet detection/processing.). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs and a selection unit.

However, Reiss teaches multiple DPMs (see paragraph 115 lines 1-5) and a selection unit coupled to the DPMs (see paragraph 115 lines 1-5; The selection unit selects between the multiple DPMs/tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 20, Khansari teaches all the subject matter of the claimed invention with the exception of a plurality of DPMs. Reiss teaches a plurality of DPMs

(see paragraph 115 lines 1-5). It is well known in the art that the received packet can be compared with a current map. Thus, it would have been obvious to one of ordinary skill in the art to use a current map. The motivation for doing so is to make the system more efficient by focusing on the current map.

Regarding claim 21, Khansari teaches the control unit providing the PSV to the DPM (see col. 7 lines 50-56). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches providing the PSV to a selected one of the multiple DPMs (see paragraph 122 1-5) and a current and previous DPM (see paragraph 115 lines 1-7; There is a current DPM/table and the other tables are the previous tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 22, Khansari teaches clearing an inactive portion of the DPM (see col. 8 lines 1-5). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches multiple DPMs and clearing the older/inactive DPM (see 115 lines 1-7). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 23, Khansari further teaches a packet summary value generator, where the duplicate packet map is coupled to the PSV generator (see col. 7 lines 39-45).

Regarding claim 24, Khansari teaches a DPM addressing unit coupled between the PSV generator and the DPM (see col. 7 lines 50-56; The addressing unit provides the PSV to the table.) Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs and a selection unit.

However, Reiss teaches multiple DPMs (see paragraph 115 lines 1-5) and a selection unit coupled to the DPMs (see paragraph 115 lines 1-5; The selection unit selects between the multiple DPMs/tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 25, Khansari teaches and a DPM control unit, coupled to control the DPM addressing unit and the DPM (see col. 7 lines 39-45; The control unit controls the duplicate packet detection/processing.). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs and a selection unit.

However, Reiss teaches multiple DPMs (see paragraph 115 lines 1-5) and a selection unit coupled to the DPMs (see paragraph 115 lines 1-5; The selection unit selects between the multiple DPMs/tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 26, Khansari teaches the hit signal indicates that bit values of the PSV match bit values stored in corresponding locations in a DPM (see col. 7 lines 46-51). Khansari teaches all the subject matter of the claimed invention with the exception of a selection unit and multiple DPMs.

However, Reiss teaches multiple DPMs (see paragraph 115 lines 1-5) and a selection unit coupled to the DPMs (see paragraph 115 lines 1-5; The selection unit selects between the multiple DPMs/tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 27, Khansari further teaches the PSV generator is configured to generate a PSV based on a packet received by the PSV generator (see col. 7 lines 43-45), and the DPM is configured to receive the PSV (see col. 7 lines 50-51).

Regarding claim 28, Khansari further teaches the DPM is further configured to indicate that the PSV matches a PSV stored in the DPM (see col. 7 lines 46-50).

Regarding claim 29, Khansari further teaches the PSV is configured to generate the PSV using a cyclic redundancy check computation (see col. 7 lines 50-51).

Regarding claim 30, Khansari further teaches a packet processing unit, the packet processing unit comprising the PSV generator (see col. 7 lines 39-45).

Regarding claim 31, Khansari further teaches the DPM bank comprises the DPM (see col. 7 lines 43-45), the DPM bank is configured to generate a hit signal (see col. 7 lines 46-50), and the DPM bank is coupled to receive the PSV from the PSV

generator (see col. 7 lines 50-55) and to provide the hit signal to the packet processing unit (see col. 7 lines 33-43).

Regarding claim 32, Khansari teaches the hit signal indicates that a value of the PSV matches a value stored in a DPM (see col. 7 lines 39-45). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 33, Khansari teaches the hit signal indicates that bit values of the PSV match bit values stored in corresponding locations in a DPM (see 46-61). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 34, Khansari further teaches the packet processing unit is configured to process the packet using the hit signal (see col. 7 lines 34-36).

Regarding claim 35, Khansari further teaches the processing includes causing the packet processing unit to drop the packet based on the hit signal (see col. 7 lines 34-36).

Regarding claim 36, 46, 55, 60, 68, 73, 81, and 86, Khansari teaches determining if a field of a duplicate packet map indicates the packet is the duplicate packet (see col. 7 lines 46-50), wherein the determination is made using a DPM, a DPM bank, and a packet summary value corresponding to the packet (see col. 7 lines 50-56) and wherein the DPM comprises a previous time interval field and a current time interval field (see col. 7 line 64 – col. 8 line 5). Khansari teaches all the subject matter of the claimed invention with the exception of a plurality of DPMs.

However, Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claims 37, 56, and 69, Khansari further teaches indicating the packet is the duplicate packet, if the determination determines the packet is the duplicate packet (see col. 7 lines 46-50).

Regarding claim 38, Khansari further teaches dropping the packet, if the packet is the duplicate packet (see col. 7 lines 34-36).

Regarding claims 39, 57, 70, and 83, Khansari further teaches comparing the PSV to the DPM (see col. 7 lines 46-50).

Regarding claim 40, Khansari further teaches the determination is made by comparing a bit of the PSV with a bit stored in the field of the DPM, and the indicating is performed if the bit of the PSV matches the bit stored in the field of the DPM (see col. 7

lines 50-56; The index generated from the FCS is compared to the index in the table. The matching index then indicates if the packet was previously received.).

Regarding claim 41, Khansari further teaches setting the bit stored in the field of the DPM to a value of the bit of the PSV (see col. 7 lines 46-51).

Regarding claims 42, 58, and 71, Khansari further teaches selecting the field of the DPM based on the PSV (see col. 7 lines 50-56; The index of the hash table is selected by matching the index generated from the FCS field.).

Regarding claim 43, Khansari further teaches the determination is made by selecting the field of the DPM based on a value of the PSV (see col. 7 lines 50-56; The value of the PSV is the index.) and the indicating is performed if a value stored in the field of the DPM indicates that the packet is the duplicate packet (see col. 7 lines 46-50).

Regarding claim 44, Khansari further teaches setting the value stored in the field of the DPM, if the packet is not the duplicate packet (see col. 7 lines 50-56).

Regarding claims 45, 59, 72, and 85, Khansari further teaches generating the PSV by generating a cyclic redundancy check value based on information in the packet (see col. 7 lines 50-56).

Regarding claim 48, 62, 75, and 88, Khansari teaches determining if a field of the DPM indicates the packet is the duplicate packet (see col. 7 lines 46-50, using the PSV (see col. 7 lines 50-56). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches using multiple DPMs to determine if the packet is the duplicate packet (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets to reduce the number of missed duplicate packets.

Regarding claim 49, 63, 76, and 89, Khansari teaches indicating the packet is not the duplicate packet, if the DPM indicates the packet is not the duplicate packet and indicating the packet is the duplicate packet, otherwise (see col. 7 lines 46-50). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches using multiple DPMs to determine if the packet is the duplicate packet (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets to reduce the number of missed duplicate packets.

Regarding claim 50, 64, 77, and 90, Khansari teaches designating a portion of the table as inactive or previous and using a portion as the current DPM (see col. 8 lines 1-5). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches using multiple DPMs and designating a current DPM as well as inactive and previous DPMs (see paragraph 115 lines 1-7). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the

system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 51, Khansari teaches clearing the inactive portion of the DPM prior to using it as the current DPM (see col. 8 lines 1-5). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches using multiple DPMs and designating a current DPM as well as inactive and previous DPMs (see paragraph 115 lines 1-7) and clearing the inactive DPM. Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 52, 54, 65, 67, 78, 80, 91, and 92, Khansari teaches the act of periodically reducing the DPM by selecting the inactive and active portions of the DPM (see col. 8 lines 1-5). Khansari teaches all the subject matter of the claimed invention with the exception of multiple DPMs.

However, Reiss teaches using multiple DPMs and designating a current DPM as well as inactive and previous DPMs (see paragraph 115 lines 1-7) and clearing the inactive DPM. Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

Regarding claim 53, 66, and 79, Khansari further teaches a period of the performing periodically is such that the period is greater than an expected differential

between duplicate packet arrivals and the period is less than a time between packet retransmissions (see col. 8 lines 6-14).

Response to Arguments

5. Applicant's arguments filed April 28, 2008 have been fully considered but they are not persuasive.

Regarding claims 1, 36, 55, 68, and 81, Applicant submits Khansari in view of Reiss does not teach the DPM comprises a previous time interval field and a current time interval field. Examiner respectfully disagrees.

Khansari teaches the DPM comprises a previous time interval field and a current time interval field (see col. 7 line 64 – col. 8 line 5). When a new frame is received, a '1' is marked indicating it was received in the current time interval. After a aging time period is expired the '1' is changed to a '0' indicating a previous time interval.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betty Lee whose telephone number is (571) 270-1412. The examiner can normally be reached on Monday-Thursday 9-5 EST and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2619

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. L./

Examiner, Art Unit 2619

/Hassan Kizou/

Supervisory Patent Examiner, Art Unit 2619